

Application No. 10/813,306  
Amendment "A" dated November 18, 2005  
Reply to Office Action mailed August 24, 2005

### REMARKS

Applicants and Applicants' attorneys express appreciation to the Examiner for the courtesies extended during the recent interview held on November 14, 2005. Reconsideration and allowance of the above-identified application are now respectfully requested.

Claims 1-24 remain pending in the application, wherein claims 1, 18 and 22 have been amended and new claims 23 and 24 were added.

As discussed during the Examiner Interview, the present invention as claimed relates to a lens used with a light-emitting device that includes a connector body, a light guide extending from the connector body, and a ball or substantially rounded shape at a distal end of the light guide. The lens is used in light curing a dental composite material within a dental preparation. The ball or substantially rounded shape can be used to press a matrix band against an adjacent tooth while light curing the dental composite material.

Claim 1, as amended and discussed during the Examiner Interview, defines a lens that includes a light guide in which the proximal end adjacent to the connector body has "a cross-sectional diameter that is no larger than half the cross-sectional diameter of said connector body in order to facilitate placement of said light guide within a dental preparation during a dental restoration procedure". Support for this limitation is shown in Figures 1A-1C, 4A-4D, and 6A-6B of the present Application. This feature is neither taught nor suggested in any of Maissami (US 5,791,898), Fischer et al. (US 2003/0215766)<sup>1</sup>, McIkechi et al. (US 2002/0187455), or Senn et al. (US 6,482,004). The only remaining reference is Hack et al. (US 5,897,314), which teaches a thin, flexible, narrow gauge fiber optic for placement into differently-shaped root canals. Col. 2, lines 18-29; col. 4, lines 41-43; claims 1 and 9

Claim 1 was therefore further amended to specify that the "light guide [is] sufficiently rigid as to enable said ball or substantially rounded shape to hold a matrix band against a tooth adjacent to a dental preparation during use". Support for this limitation is found in the Application at ¶¶ [0009], [0025], [0040] and [0041]. This feature was also discussed during the Examiner Interview. One of skill in the art would not have been motivated to combine the thin, flexible, narrow gauge fiber optic of Hack et al. with any of Maissami or Fischer to obtain the lens as now claimed, since the fiber optic of Hack et al. is much too flexible to "hold a matrix

<sup>1</sup> Because Fischer et al. is only citable under 35 U.S.C. § 102(a), Applicant does not admit that Fischer et al. is in fact prior art but reserves the right to establish an invention date that predates the filing and/or publication dates of Fischer et al.

Application No. 10/813,306  
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band against a tooth adjacent to the dental preparation during use". Moreover, it would be contrary to Hack et al. to provide a more rigid light guide capable of holding a matrix band against a tooth. An important feature of the thin, flexible, narrow gauge fiber optic of Hack et al. is its ability to easily conform to differently shaped root canals.

In view of the foregoing, Applicant submits that claim 1 as amended is patentable over the art of record, as are claims 2-17 and 22 which depend from claim 1.

Claim 18 alternatively claims a light curing system comprising a light-emitting device and a lens for use with the light-emitting device. The lens comprises a connector body, a light guide extending from the connector body, and a ball or substantially rounded shape at a distal end of the light guide. The light guide is "substantially cylindrical in order to facilitate placement of said light guide within a dental preparation during a dental restoration procedure". Support for this limitation is found in Figures 1A-1C, 2B, 4A-4D, and 6A-6B, as well as original claim 7. Neither Fischer et al. nor Maissami teach or suggest a lens having a connector body and a light guide extending therefrom that is "substantially cylindrical". Though the Office Action alleges that Figure 4D shows a cylindrical light guide, inspection of this drawing shows no such thing. This drawing merely depicts an elliptical footprint of light 498 emitted by the dental curing light 400.

Claim 18 was further amended to specify that the "light guide [is] sufficiently rigid as to enable said ball or substantially rounded shape to hold a matrix band against a tooth adjacent to a dental preparation during use". As discussed above, a critical feature of Hack et al. is the ability of the thin, flexible, narrow gauge fiber optic to easily conform to differently shaped root canals. Accordingly, claim 18 as amended is believed to be patentable over the art of record, as are claims 19-21 which depend from claim 18.

New claim 23 recites a lens comprised of a connector body, a light guide extending from the connector body, and a ball at the distal end of the light guide distal. The ball specifically has "a diameter ranging from about 1 mm to about 6 mm". Support for this limitation is found in original claim 10. The only cited reference that discloses a light guide having a ball at the distal end is Hack et al. As discussed above, the light guide of Hack et al., and any portion of it, must be sufficiently small so as to fit within a root canal. Hack et al. teaches that the diameter of the fiber optic 7 is between 200 and 500 microns (*i.e.*, less than 0.5 mm). Col. 6, lines 8-10. The ball 45 depicted in Figure 6 is not twice the diameter of the fiber optic 7. Therefore, Applicant

Application No. 10/813,306  
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submits that Hack et al. does not teach or suggest a ball having "a diameter ranging from about 1 mm to about 6 mm".

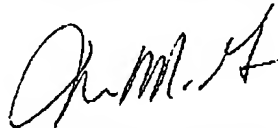
The purpose of having a larger ball in the present application is the ability to push a matrix band against an adjacent tooth while curing a dental composite composition within a dental preparation. In contrast, the purpose of having a smaller ball in Hack et al. is to permit placement of the ball and associated fiber optic into a root canal of a tooth. It would be contrary to Hack et al. to provide a ball having the dimensions recited in claim 23 since doing so may prevent the ball from being readily inserted into a root canal. It is never obvious to modify a reference in a manner that renders it unsuitable for its intended purpose. MPEP § 2143.02. Accordingly, Applicant submits that claim 23 is patentable over the art of record.

New claim 24 is further patentable over the art of record since it recites a ball having a minimum diameter of about 2 mm, which is twice as large as the minimum diameter recited in claim 23.

In view of the foregoing, Applicants submit that the claims as now presented are in allowable form. In the event the Examiner finds any remaining impediment to the prompt allowance of this application, which may be clarified through a telephone interview or that may be overcome by examiner amendment, the Examiner is requested to contact the undersigned attorney.

Dated this 18<sup>th</sup> day of November 2005.

Respectfully submitted,



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